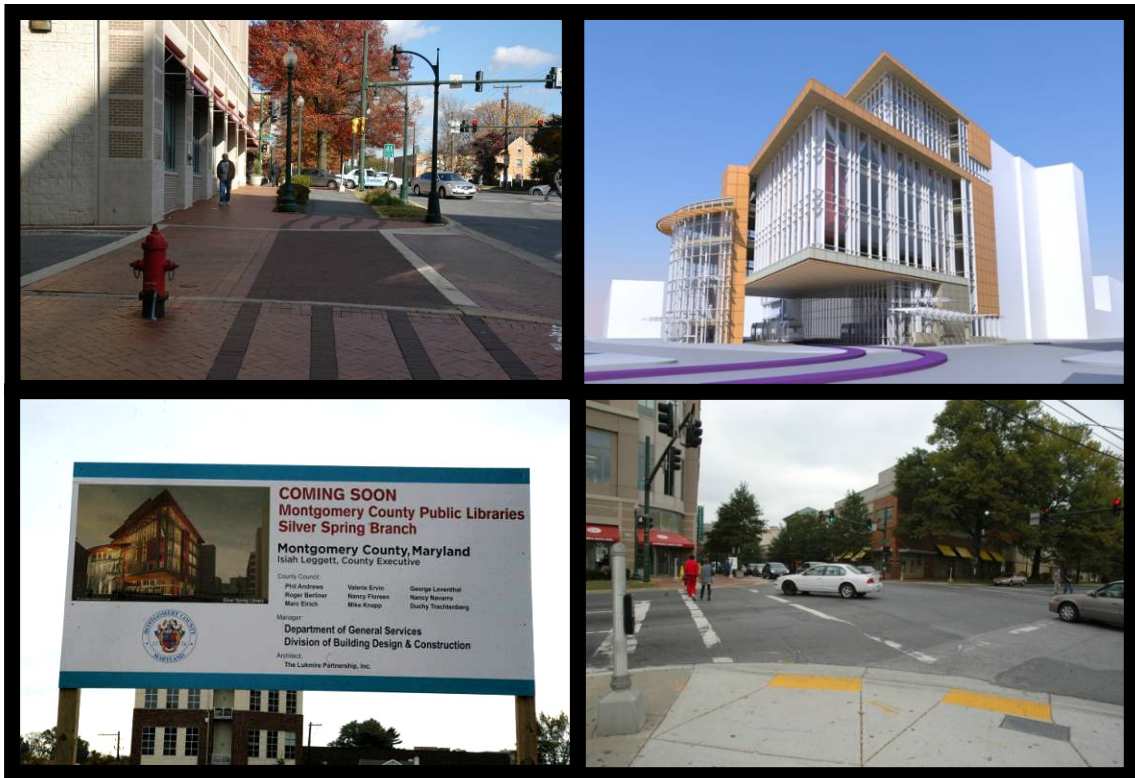


# Pedestrian Impact Statement

## Silver Spring Regional Library, Montgomery County, Maryland



October 2011

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# **1. INTRODUCTION**

## **1.1. Overview**

The objective of this pedestrian impact statement is to evaluate the effect of the proposed Silver Spring Library on pedestrian and bicycle safety and mobility in the area immediately surrounding the site. The location of the proposed development is on the southwest quadrant of the Fenton Street/Wayne Avenue intersection (between Wayne Avenue and Bonifant Street) in Silver Spring, Maryland. The proposed library will be located adjacent to The Crescent building condominiums, across Wayne Avenue from the Wayne Avenue garage and Washington Sports Club, and across Fenton Street from the First Baptist Church of Silver Spring.

This report is intended for distribution to Montgomery County Department of General Services (DGS), Montgomery County Department of Transportation (DOT), Montgomery County Department of Permitting Services (DPS), Montgomery County Transit (Ride-On), and the Maryland-National Capital Park and Planning Commission (M-NCPPC). These agencies are invited to consider the suggested measures described in this report for potential implementation.

## **1.2. Study Area**

The study area, as shown in Figure 1, includes the following intersections which are located within a 1/4 mile maximum walking distance from the proposed library site:

- Fenton Street and Wayne Avenue
- Fenton Street and Ellsworth Drive
- Fenton Street and Bonifant Street
- Bonifant Street and Hankin Street and Grove Street
- Wayne Avenue and Cedar Street

The intersections of Georgia Avenue at Wayne Avenue and Georgia Avenue at Bonifant Street were not evaluated as part of this effort. Pedestrian safety and mobility at these intersections were assessed during a recent pedestrian road safety audit conducted by the Montgomery County Department of Transportation. Still, any notable impacts at these intersections related to the proposed site will be identified in this report.

This pedestrian impact statement assesses the impact of the proposed project on pedestrian safety and mobility at the intersections in the study area and on sidewalk links between the intersections and the proposed library. Particular attention was given to the potential for pedestrian trips generated by the Wayne Avenue parking facility located to the north of the site and the proposed Purple Line station at the proposed library.

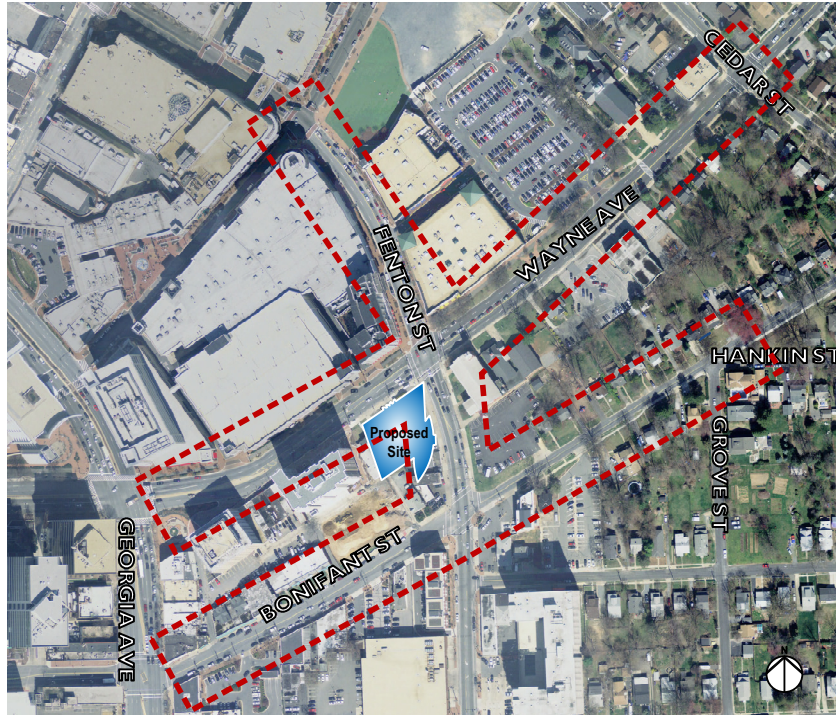


Figure 1: Study Area

### 1.3. Relevant Documentation

This Pedestrian Impact Statement relies upon the information, data, and evaluations included in several resources associated with previous study and permitting efforts for the proposed Silver Spring Library. The following documents were reviewed as part of this study:

- Silver Spring Library and Art Center Existing Conditions Plan, Montgomery County Department of General Services, Division of Building Design and Construction, Prepared by the Lukmire Partnership and ADTEK, June 2010
- Traffic Impact Analysis Silver Spring Regional Library, Prepared by Street Traffic Studies, Ltd., July 2009
- Supplemental Pedestrian Analysis Silver Spring Regional Library, Prepared by Street Traffic Studies, Ltd., January 2010
- Conceptual Silver Spring Library layout by floor (basement through 7<sup>th</sup> floor), Prepared by the Lukmire Partnership, September 2010
- Schematic Silver Spring Library design with proposed pedestrian bridge, Prepared by the Lukmire Partnership
- Silver Spring Library Wayne Avenue Garage 2<sup>nd</sup> and 4<sup>th</sup> floor travel distances, Prepared by the Lukmire Partnership
- Purple Line Proposed Configuration for Bonifant Street: Traffic Control and Operations, Maryland Transit Administration, Prepared by Rummel, Klepper & Kahl, LLP, February 2010

- Purple Line Transitway Locally Preferred Alternative Advanced Conceptual Design, Maryland Transit Administration, Prepared by Rummel, Klepper & Kahl, LLP, February 2010
- Silver Spring Bike Map, Published by Montgomery County of Public Works and Transportation, Commuter Services Section, June 2005
- Traffic Study - Midblock Crossing at Wayne Avenue between Fenton Street and Georgia Avenue, Montgomery County Department of Public Works and Transportation, Division of Operations, Prepared by Mike Tantillo, January 2009

## **2. EXISTING CONDITIONS INVENTORY AND ASSESSMENT**

This section provides a description of existing conditions within the study area that may impact pedestrian safety and mobility at the proposed library.

### **2.1. Pedestrian and Bicycle Facilities**

The inventory of existing accommodations related to pedestrians and cyclists includes the following items:

- sidewalks
- crosswalks
- pedestrian signals
- pedestrian push buttons
- pedestrian and bicycle signage
- bike lanes and trails
- sidewalk buffers
- on-street parking
- medians
- bus stops

#### **2.1.1. Roadway Segments**

Sidewalk and bicycle facility connectivity is generally adequate along Wayne Avenue, Fenton Street, and Bonifant Street west of Fenton Street. Pedestrian and bicycle-related roadway and roadside improvements, including sidewalk widening, landscape barriers, and off-street bicycle pathways have been implemented on these roadways relatively recently. Notably, many sections of Fenton Street, Wayne Avenue, and Bonifant Street provide accessible pedestrian signals, countdown pedestrian signals, pedestrian ramps, high-visibility crosswalks (i.e., diagonal or ladder bar markings), and buffer zones or on-street parking. The locations of these accommodations are summarized in Figure 2. Other notable accommodations include the marked midblock crosswalks across Fenton Street between Ellsworth Drive and Wayne Avenue, and across Wayne Avenue between Fenton Street and Cedar Street. The pedestrian related facilities for these roadway segments are discussed in further detail below.



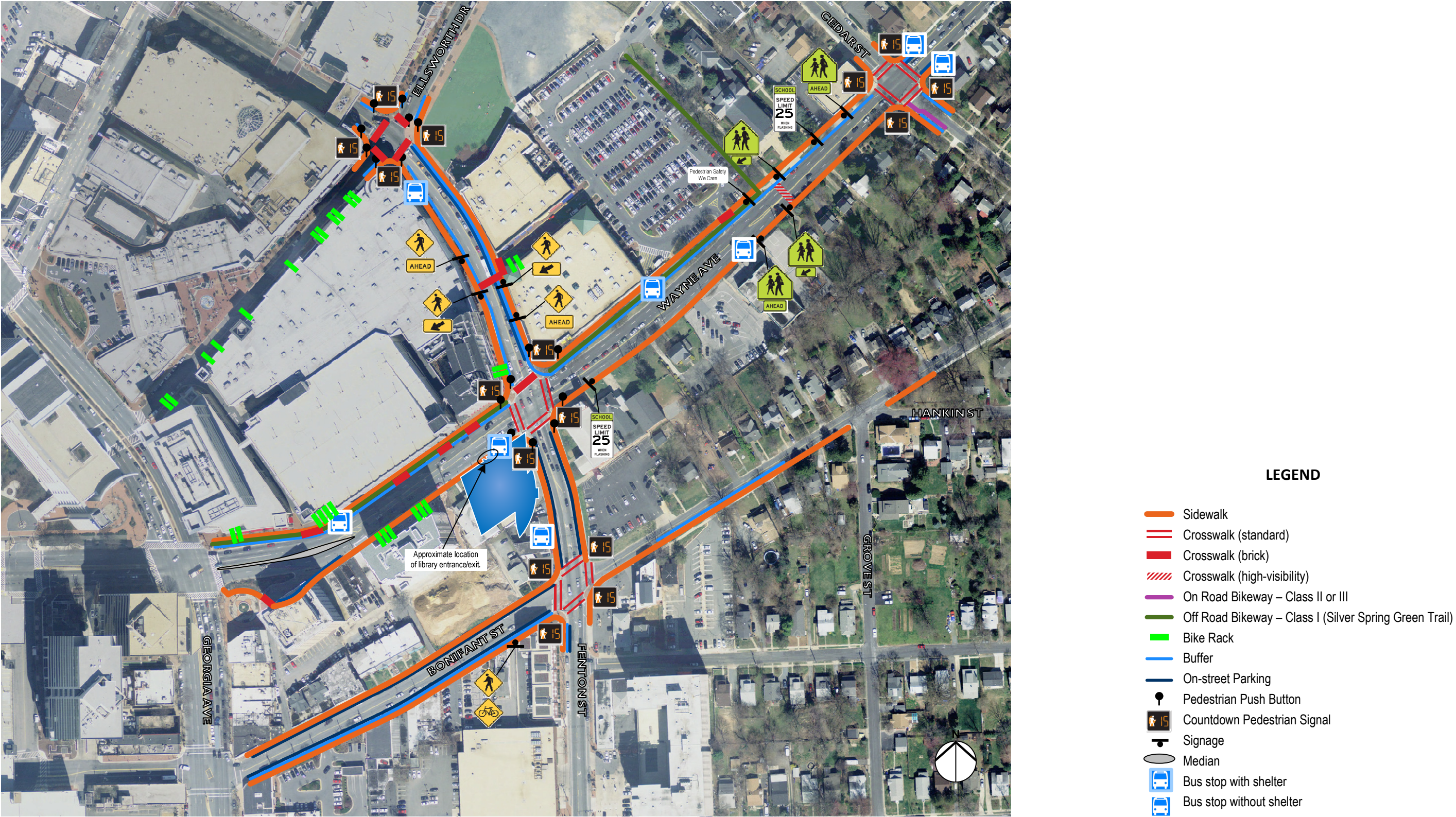


Figure 2: Inventory of Existing Pedestrian and Bicycle Accommodations



Additionally, depictions of the actual and effective sidewalk widths are included in the following sections for Wayne Avenue (Figure 4 ), Fenton Street (Figure 7) and Bonifant Street (Figure 8). The actual sidewalk width (A) is the distance between the curb and the opposite edge of the sidewalk. The effective sidewalk width (E) is the usable pedestrian space, which can be a measure of the distance between the buffer or a sidewalk obstruction and the frontage or landscaping of a commercial or residential property.

### **Wayne Avenue**

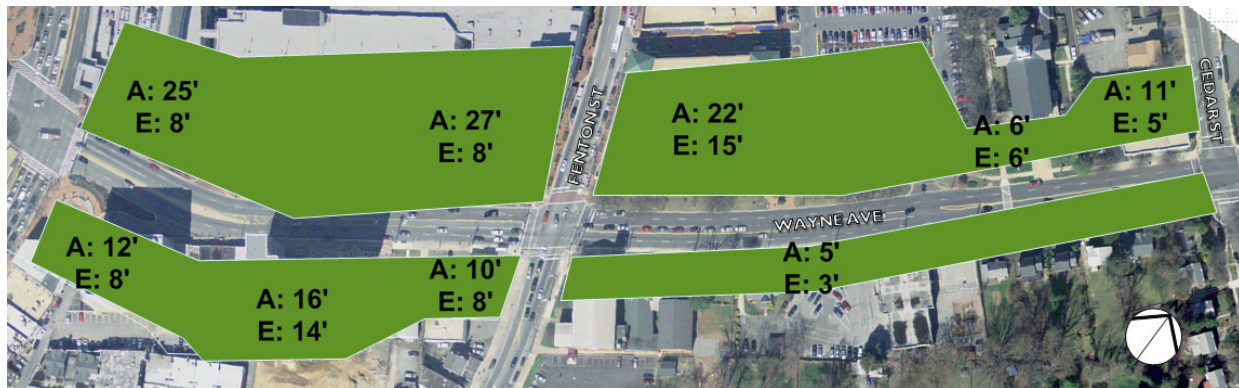
- *Existing Conditions* –The sidewalks west of Fenton Street, consisting primarily of brick paving, appear designed to accommodate a considerable volume of pedestrians (and cyclists). East of Fenton Street, there are primarily asphalt and concrete sidewalks on both sides of Wayne Avenue. The sidewalks along some segments of Wayne Avenue include spot issues like pinch-points and inclined cross-slopes. Sidewalk obstructions were observed along the south side of Wayne Avenue between Fenton Street and Cedar Street. Obstructions are also present at the pedestrian waiting area in the southeast corner of the Fenton Street and Wayne Avenue intersection.



**Figure 3: Narrow effective sidewalk width along south side of Wayne Avenue between Fenton Street and Cedar Street.**

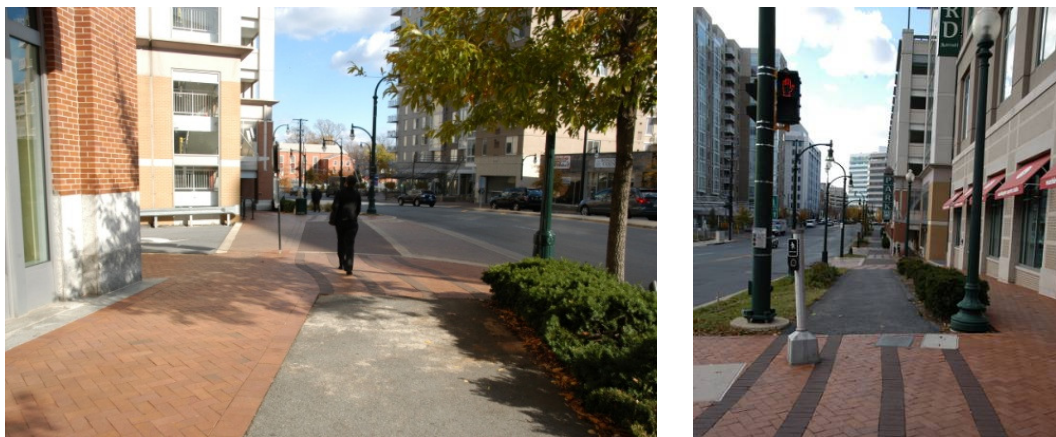
- *Medians and Roadside Buffers* - A raised median is provided for approximately 400 feet on Wayne Avenue, just east of Georgia Avenue. No physical barriers or landscaping are installed in the median. This median is used frequently as a refuge for pedestrians crossing Wayne Avenue midblock between Georgia Avenue and Fenton Street. The south side of Wayne Avenue, however, lacks either type of buffer. The portion of Wayne Avenue between Fenton Street and Cedar Street also has a relatively narrow effective sidewalk width. On the south side of this segment, there was no buffer zone between the sidewalk and street.
- *Actual and Effective Sidewalk Widths* – East of Fenton Street the actual sidewalk widths along Wayne Avenue vary from 6 feet to 22 feet on the north side and are 5 feet on the south side. Several points along this section are narrowed to an effective width of less than three feet due to obstructions such as utility poles and overgrown vegetation. The sidewalks along Wayne Avenue west of Fenton Street are relatively wide with actual widths ranging from 25 feet to 27 feet and 10 feet to 16 feet on the north and south sides, respectively. The effective widths along this section are sufficient for accommodating ADA accessibility. The actual and effective widths along Wayne Avenue are shown in Figure 4.





**Figure 4: Actual and Effective Sidewalk Widths on Wayne Avenue**

- *Midblock Crosswalks* – A marked midblock crosswalk is present in the study area across Wayne Avenue adjacent to St. Michael’s Archangel Church and St. Michael’s School (i.e., between Fenton Street and Cedar Street). This crossing includes warning signs indicating a designated school crossing.
- *Bicycle Facilities* - The Silver Spring Green Trail is a multi-use sidepath that parallels Wayne Avenue between Cedar Street and the Silver Spring Metro Station. East of Cedar Street, there is no separated sidepath; however, the initial plan called for the Trail to connect the Silver Spring Transit Center (currently under construction) to Sligo Creek Parkway. Currently, the Silver Spring Green Trail provides east/west connectivity for cyclists. The 2005 Countywide Bikeways Functional Master Plan designates this facility as a Class I facility (existing west of Fenton Street and proposed east of Fenton Street). A Class I facility is a term used to denote a shared use path or a bikepath.



**Figure 5: The section of the Silver Spring Green Trail adjacent to the Wayne Avenue Garage exposes bicyclists and pedestrians to potential conflicts with vehicles entering and exiting the garage and exiting the alley.**

- *Access Management* – Along the designated bicycle path on the north side of Wayne Avenue, there are multiple conflict points from the many driveways that cross the path. The most critical of these conflicts arises from cyclists riding in the opposite direction of vehicular traffic. In this situation, motorists exiting driveways are focused on finding a

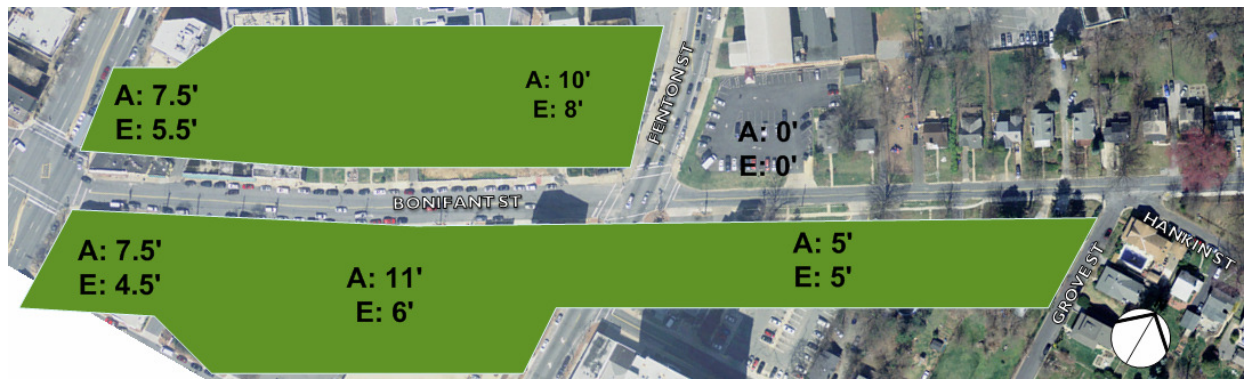
gap in vehicular traffic and are not looking for cyclists approaching on the sidewalk from the right.

### ***Bonifant Street***

- *Existing Conditions* – The sidewalk on Bonifant Street is limited to the south side along the residential portion east of Fenton Street. The south side of Bonifant Street along this section appears to be difficult to traverse for people with mobility restrictions. Near the service station on the southeast corner of the intersection at Fenton Street this section of the sidewalk is interrupted by two driveways and a shift in alignment occurring at one of the driveways. Compounding this issue is the observation that vehicles are sometimes parked on the section of sidewalk between these driveways, thus making the sidewalk virtually impassible and diminishing visibility between pedestrians and vehicles using the driveways. Further to the east, the sidewalk has an abrupt change in level that is not ADA compliant. On Bonifant Street, west of Fenton Street, there are concrete sidewalks on both sides of the corridor that are continuous.
- *Medians and Roadside Buffers* – While there is no median along Bonifant Street, occasional buffering was present in the form of tree wells west of Fenton Street and relatively wide grass strips east of Fenton Street along the south side of the corridor. The grass strips east of Fenton Street are sporadically separated by sidewalks providing direct access to the travelway. Additionally, parking zones west of Fenton Street provide some buffering from vehicular traffic, but may also impact visibility of pedestrians crossing at uncontrolled midblock locations.
- *Actual and Effective Sidewalk Widths* – West of Fenton Street sidewalks were observed on both sides of Bonifant Street, with actual widths ranging from 7.5 feet to 10 feet on the north side and 4.5 feet to 6 feet on the south side. For most of this section, ADA accessibility is accommodated. However segment near Georgia Avenue has a few obstructions (i.e., utilities) that narrow the effective width. East of Fenton Street, the 5-ft actual width is maintained. The actual and effective widths along Bonifant Street are shown in Figure 7.



**Figure 6: Vehicle blocking the sidewalk at the service station located at the southeast corner of the intersection of Fenton Street station and Bonifant Street.**



**Figure 7: Actual and Effective Sidewalk Widths on Bonifant Street**

- *Midblock Crosswalks* – There are no designated midblock crosswalks along Bonifant Street within the study area.
- *Bicycle Facilities* – Separate bicycle facilities do not exist nor are planned for this section of Bonifant Street.
- *Access Management* - There is minimal driveway access to commercial properties on Bonifant Street. Along the residential section of Bonifant Street, east of Fenton Street, many of the homes include private driveways.

#### **Fenton Street**

- *Existing Conditions* – The sidewalks north of Wayne Avenue, consisting primarily of brick paving, appear designed to accommodate a considerable volume of pedestrians. South of Wayne Avenue, there are primarily concrete sidewalks on both sides of Fenton Street. The sidewalks along some segments include spot issues like uneven surfaces and inclined cross-slopes.
- *Medians and Roadside Buffers* - A continuous landscaped buffer, bordered by ornamental metal wickets, has been installed on the west side of Fenton Street between Ellsworth Drive and the midblock crosswalk on Fenton Street. Additionally, tree boxes, street furniture, and on-street parking along the east side of the Fenton Street provide an intermittent physical and visual barrier for pedestrians. South of Wayne Avenue, there are no landscaped buffers on either side of Fenton Street, metered, on-street parking, however, is available on both sides. Parking serves as a buffer for pedestrians from vehicular traffic when parked vehicles are present.
- *Actual and Effective Sidewalk Widths* – South of Wayne Avenue, sidewalks were observed on both sides of Fenton Street, with actual widths ranging from 11 feet to 12 feet. The actual widths of both sidewalks along Fenton Street between Wayne Avenue and Ellsworth Drive are approximately 17 feet, although effective widths are about 8.5 feet due to landscaped buffers and street furniture and hardware. North of Ellsworth Drive, the actual sidewalk widths range from 8 feet on the west side to 28 feet on the east side. The actual and effective widths along Fenton Street are shown in Figure 8.





Figure 8: Actual and Effective Sidewalk Widths on Fenton Street

- *Midblock Crosswalks* - Marked midblock crosswalks are present in the study area across Fenton Street between Ellsworth Drive and Wayne Avenue. Notably, the study team observed significant pedestrian activity at the crosswalk across Fenton Street. Visibility of this crossing from the northbound approach also is limited due to the presence of on-street parking.
- *Bicycle Facilities* – Separate bicycle facilities do not exist on this section of Fenton Street and there is no bicycle facility designation according to the 2005 Countywide Bikeways Functional Master Plan.
- *Access Management* - There is minimal driveway access to commercial properties on Fenton Street. Conflicts may occur at the driveway access for the hotel on the west side of Fenton Street, north of Wayne Avenue. There are no access points on Fenton Street between Wayne Avenue and Bonifant Street.

### 2.1.2. Intersections

All signalized intersections in the study area provide countdown pedestrian signals. Several intersections are marked with high-visibility crosswalks (i.e., diagonal or ladder-bar markings).

#### **Wayne Avenue & Fenton Street**

- *Description* – The intersection of Wayne Avenue and Fenton Street is signalized. On the northbound approach, a left turn bay, through lane, and right turn bay are present. On the southbound approach, a left turn lane and a shared through and right turn lane are present. In both the westbound and eastbound directions, a left turn lane, a through lane, and a shared through and right turn lane are present. “No right turn on red” restrictions are in place on each approach to the intersection.
- *Crosswalks* - All crosswalks at the Wayne Avenue and Fenton Street intersection are marked. The north leg crosswalk is simulated brick with standard pavement markings (i.e., transverse lines), while the south, west, and east leg crosswalks are marked with standard pavement markings. The crosswalk surfaces are not smooth due to patching and pavement deterioration and the crosswalk pavement markings are somewhat worn.

- *Ramps & Landing Areas* - Pedestrian ramps on the south side of the intersection appear to meet current accessibility standards, and landing areas provide adequate space for pedestrians. Pedestrian ramps on the north side of the intersection lack truncated domes.
- *Pedestrian Signals & Push Buttons* – This intersection has countdown pedestrian signals for crossings on all legs. Pedestrian-activated push buttons are also present to activate audible indications. The push buttons are not needed to activate pedestrian phases as these are set to recall so that pedestrian phases always operate in conjunction with traffic signal phases. Push buttons are also equipped with directional signage.
- *Traffic Signal Phasing* – The traffic signal at the Fenton Street/Wayne Avenue intersection operates under three phases, including a protected left-turn phase for westbound traffic followed by a permissive left-turn phase for both westbound and eastbound traffic. Under the current phasing, only the pedestrian phase (i.e., Walk phase) for the north leg is activated during the protected left-turn phase, avoiding potential pedestrian conflicts between pedestrians intending to cross the south leg and westbound left-turning vehicles. The north-south approaches operate under one phase with permissive left turns. This may lead to conflicts with the parallel pedestrian movements.

#### ***Wayne Avenue & Cedar Street***

- *Description* - The intersection of Wayne Avenue and Cedar Street is signalized. On the southbound approach, a left turn lane and a right turn lane are present. In the northbound direction, there is a shared left and through lane and a right turn bay. Cedar Street south of Wayne Avenue is one-way in the northbound direction, although a counterflow bicycle lane is present in the southbound direction. On the westbound approach, a through lane and a shared through and right turn lane are present. On the eastbound approach, a shared left turn and through lane and a through lane are present. “No right turn on red” restrictions are in place on each approach of this intersection.
- *Crosswalks* - All crosswalks at the Wayne Avenue and Cedar Street intersection are marked. The south leg crosswalk is marked with standard pavement markings (i.e., transverse lines), while the north, west, and east leg crosswalks are marked with high-visibility, diagonal pavement markings. All crosswalk pavement markings are in good condition.
- *Ramps & Landing Areas* - Curb ramps at the northeast and northwest corners of the Wayne Avenue and Cedar Street intersection do not meet current accessibility standards.
- *Pedestrian Signals & Push Buttons* - This intersection has countdown pedestrian signals on all approaches. Pedestrian-activated push buttons are not present at the intersection

but all pedestrian signals are set to recall so that pedestrian phases always operate in conjunction with traffic signal phases.

- *Traffic Signal Phasing* - This intersection operates under two-phase signal control, with permissive left-turn phasing, in which the pedestrian phase is activated during the concurrent (parallel) vehicle phase. This type of phasing can improve intersection capacity by reducing cycle lengths and lost signal time, but can contribute to potential pedestrian conflicts by exposing pedestrians to turning vehicles during all phases.

#### **Fenton Street & Ellsworth Drive**

- *Description* - The intersection of Fenton Street and Ellsworth Drive is signalized. On both the northbound and southbound approaches, a left turn lane and a shared through and right turn lane are present. On the westbound and eastbound approaches, single, shared left, through, and right turn lanes are present.
- *Crosswalks* - All crosswalks at the Fenton Street and Ellsworth Drive intersection are delineated with simulated brick and standard crosswalk pavement markings (i.e., transverse lines). All crosswalk pavers and pavement markings are in good condition.
- *Ramps & Landing Areas* – Truncated domes are missing from all pedestrian ramps, however, landing areas provide adequate space for pedestrians.
- *Pedestrian Signals & Push Buttons* - This intersection has countdown pedestrian signals for crossings on all legs. Pedestrian-activated push buttons are also present to activate audible indications. The push buttons are not needed to activate pedestrian phases as these are set to recall so that pedestrian phases always operate in conjunction with traffic signal phases. Push buttons are also equipped with directional signage.
- *Traffic Signal Phasing* - This intersection operates under two-phase signal control, with permissive left-turn phasing, in which the pedestrian phase is activated during the concurrent (parallel) vehicle phase. This type of phasing can improve intersection capacity by reducing cycle lengths and lost signal time, but can contribute to potential pedestrian conflicts by exposing pedestrians to turning vehicles during all phases.

#### **Fenton Street & Bonifant Street**

- *Description* - The intersection of Fenton Street and Bonifant Street is signalized. On the northbound and southbound approaches, shared left, through, and right turn lanes are present. A two-way, left-turn lane is present along Fenton Street through this intersection. Single, shared lanes are also present on the eastbound and westbound approaches. “No right turn on red” restrictions are in place on each approach to the intersection.
- *Crosswalks* - All crosswalks at the intersection are marked with standard pavement markings (i.e., transverse lines). Pavement markings are worn and the crosswalk surface is rough to due patching and pavement condition.



- *Ramps & Landing Areas* - All pedestrian ramps are equipped with truncated domes and appear to meet current accessibility standards. Landing areas provide adequate space for pedestrians.
- *Pedestrian Signals & Push Buttons* - This intersection has countdown pedestrian signals on all approaches. Pedestrian-activated push buttons are not present at the intersection but all pedestrian signals are set to recall so that pedestrian phases always operate in conjunction with traffic signal phases.
- *Traffic Signal Phasing* - This intersection operates under two-phase signal control, with permissive left-turn phasing, in which the pedestrian phase is activated during the concurrent (parallel) vehicle phase. This type of phasing can improve intersection capacity by reducing cycle lengths and lost signal time, but can contribute to potential pedestrian conflicts by exposing pedestrians to turning vehicles during all phases.

#### **Bonifant Street & Hankin Street/Grove Street**

- *Description* - The intersection of Bonifant Street and Hankin Street/Grove Street is stop-controlled. The intersection is skewed and all approaches are single, shared lanes.
- *Crosswalks* - There are no marked crosswalks at the Bonifant Street and Hankin Street/Grove Street intersection. The pavement surface at the crossings is not smooth due to patching and deterioration.
- *Ramps & Landing Areas* - One curb ramp is provided with truncated domes and the other curb ramps present do not appear to meet current accessibility standards.

#### **2.1.3. Bicycle Parking/Storage**

A review of bicycle parking in the study area revealed that there are 28 inverted u-style bike racks within and in the vicinity of the study area (see Figure 2). Ellsworth Drive and Wayne Avenue each have 12 bike racks; on Wayne Avenue four of these are in the parking garage. There are also four bike racks on Fenton Street. Each rack can hold up to two bikes.

## **2.2. Transit Facilities, Service, and Frequency**

Public transit is heavily used in the study area. Several bus routes serve stops within the study area; and the Washington Metropolitan Area Transit Authority (WMATA) Silver Spring Metro Station is located within walking distance of the study area.

#### **2.2.1. Bus Stops and Shelters**

An inventory of bus stops in the study area is illustrated in Figure 2. Shelters are located at the following three bus stops:

- Eastbound Wayne Avenue at the southwest corner of the Fenton Street intersection
- Westbound Wayne Avenue next to the Whole Foods grocery store

- Southbound Fenton Street next to the City Place Mall.

### 2.2.2. Transit Routes and Frequency of Service

Montgomery County Ride-On and WMATA Metrobus routes that stop in the study area are summarized in **Table 1**. Based on existing bus schedules, headways for these routes range from seven to 55 minutes. The frequent arrival of several bus routes reflects the significant transit ridership observed in the study area.

Some pedestrian activity within the study area is attributable to the WMATA Silver Spring Metro Station as well. The Metro Red Line trains arrive every three to 12 minutes during normal service hours. The Maryland Transit Authority (MTA) MARC commuter rail also provides service to the Silver Spring Metro station during peak commuter periods.

Table 1: Transit Service and Headways.

Operator	Route	Weekday Headway
Montgomery County Ride On	12	15-30 min
	15	15-30 min
	16	15-30 min
	17	25-55 min
	19	30-36 min
	20	7-30 min
	28 (VanGo)	7 min
WMATA Metrobus	J4	16-30 min
WMATA Metrorail	Red Line	3-12 min
MARC Train	Brunswick Line	15-45 min

## 2.3. Pedestrian and Bicycle Traffic Control

This section summarizes the various types of pedestrian and bicycle traffic control used in the study area.

### 2.3.1. Pedestrian Signals

Countdown pedestrian signals are provided for crosswalks at all four signalized intersections in the study area, and accessible pedestrian push buttons are provided at the Fenton Street and Ellsworth intersection and Fenton Street and Wayne Avenue intersection. As noted in the description of the pedestrian push buttons and signals for each intersection the push buttons allow pedestrians to activate audible indications. The push buttons are not needed to activate pedestrian phases as these are set to recall so that pedestrian phases always operate in conjunction with traffic signal phases.

### Pedestrian Signal Timings

The Maryland Manual on Uniform Traffic Control Devices (MD-MUTCD), which is the State standard for pedestrian signal timings, recommends assuming a 4.0 feet per second walking pace to cross the curb-to-curb distance for determining the pedestrian clearance time. The pedestrian clearance time may be entirely contained within the vehicular green interval (G), or may be entirely contained within the vehicular green (G) and yellow change intervals (Y).

Recently, MCDOT has begun transitioning to the guidelines provided in the most recent version of the MUTCD. These suggest a pedestrian clearance time based on a pedestrian walking at a speed of 3.5 feet per second to clear the full length of the crosswalk. It should be noted that Montgomery County has an implementation timeframe for the transition to the pedestrian signal timings established in the most recent MUTCD. This has been an ongoing process that involves the retiming of networks of intersections within the County's traffic signal system.

All of the study intersections provide four seconds of yellow (Y) change interval, which provides a buffer between the pedestrian interval and the subsequent vehicular phase interval. In other words, the pedestrian clearance time is a sum of the Flashing Don't Walk (FDW) and Yellow (Y) interval. Table 2 provides a summary of the WALK and Flashing Don't Walk (FDW) + Yellow (Y) intervals and minimum clearance times, calculated based on the State standard, measured crosswalk lengths, for all signal-controlled pedestrian crosswalks in the study area.

Table 2: Pedestrian WALK and Clearance Time at Study Intersections

Intersection	Crosswalk	WALK Interval (sec)	Current Pedestrian Clearance Time (FDW+Y) (sec)	Calculated Pedestrian Clearance Time (sec)	Current Pedestrian Clearance Time > Calculated Minimum Clearance Time?
Fenton Street at Wayne Avenue	EB-WB Across Fenton St	7.0	14.0	13.8	Yes
	NB-SB Across Wayne Ave	7.0	14.0	15.5	No
Fenton Street at Ellsworth Drive	WB-EB Across Fenton St	7.0	16.0	12.5	Yes
	NB-SB Across Ellsworth Dr	7.0	16.0	7.3	Yes
Fenton Street at Bonifant Street	EB-WB Across Fenton St	7.0	14.0	13.8	Yes
	NB-SB Across Bonifant St	7.0	14.0	15.0	No
Wayne Avenue at Cedar Street	EB-WB Across Cedar St	10.0	11.0	11.5	Yes
	NB-SB Across Wayne Ave	10.0	11.0	12.5	No

A review of the pedestrian signal timing plans indicated that the existing pedestrian clearance time for some of the study intersections may be 1 to 1.5 seconds shorter than recommended by state standards for pedestrian signal timings.



### **2.3.2. Pedestrian and Bicycle Signage**

Pedestrian warning signage and school crossing and speed limit assembly signs are posted at the marked midblock crosswalks in the study area, and a “Pedestrian Safety, We Care” sign is posted on Wayne Avenue for westbound traffic entering the Silver Spring business district.

“No Turn on Red” signs are posted on all approaches to signalized intersections in the study area. These restrictions reduce potential conflicts between pedestrians and vehicles making right-turns during the red signal indication.

## **2.4. Pedestrian and Bicycle Operations**

### **2.4.1. Pedestrian and Bicycle Volumes and Peak Periods**

A pedestrian volume count for the Wayne Avenue at Fenton Street intersection was conducted as part of the traffic impact study for the Silver Spring Regional Library. The pedestrian count indicated a total of 414 pedestrian crossings on all legs of the intersection, and 137 crossings on the west leg of Wayne Avenue at Fenton Street intersection closest to the main proposed library access, during the weekday evening pedestrian peak hour (3:30-4:30).

The total pedestrian volumes at this intersection were significantly lower than the highest pedestrian volume intersections counted in the study area for the traffic study. The *Supplemental Pedestrian Analysis for the Silver Spring Regional Library* report concluded that increases in pedestrian volume associated with the proposed library and Purple Line do not represent a significant impact to the intersection. Bicycle volume data was not available for this study.

### **2.4.2. Predominant Pedestrian Desire Lines**

Significant pedestrian activity was observed along Fenton Street and Wayne Avenue, in proximity to the downtown Silver Spring commercial district. Pedestrian movement between various commercial properties and the parking garages on Wayne Avenue and Ellsworth Drive comprise significant pedestrian desire lines. Significant pedestrian crossing activity was observed at the Fenton Street/Ellsworth Drive intersection, Fenton Street/Wayne Avenue intersection, and the midblock crosswalk on Fenton Street in particular.

### **2.4.3. Uncontrolled Midblock Crossings**

Pedestrians were observed crossing Wayne Avenue at an uncontrolled midblock location between Georgia Avenue and Fenton Street. The primary pedestrian desire line along this section was between the alley that provides access to Ellsworth Drive and the west entrance of the Wayne Avenue Garage and the south side of Wayne Avenue.

Uncontrolled midblock crossings were also observed between the south entrances of the Wayne Avenue Garage and the south side of Wayne Avenue. Pedestrians were also observed crossing midblock across Fenton Street between the Ellsworth Drive and Wayne Avenue, generally to the north of the marked midblock crosswalk. Uncontrolled midblock crossing locations are shown in **Figure 9** and 10.

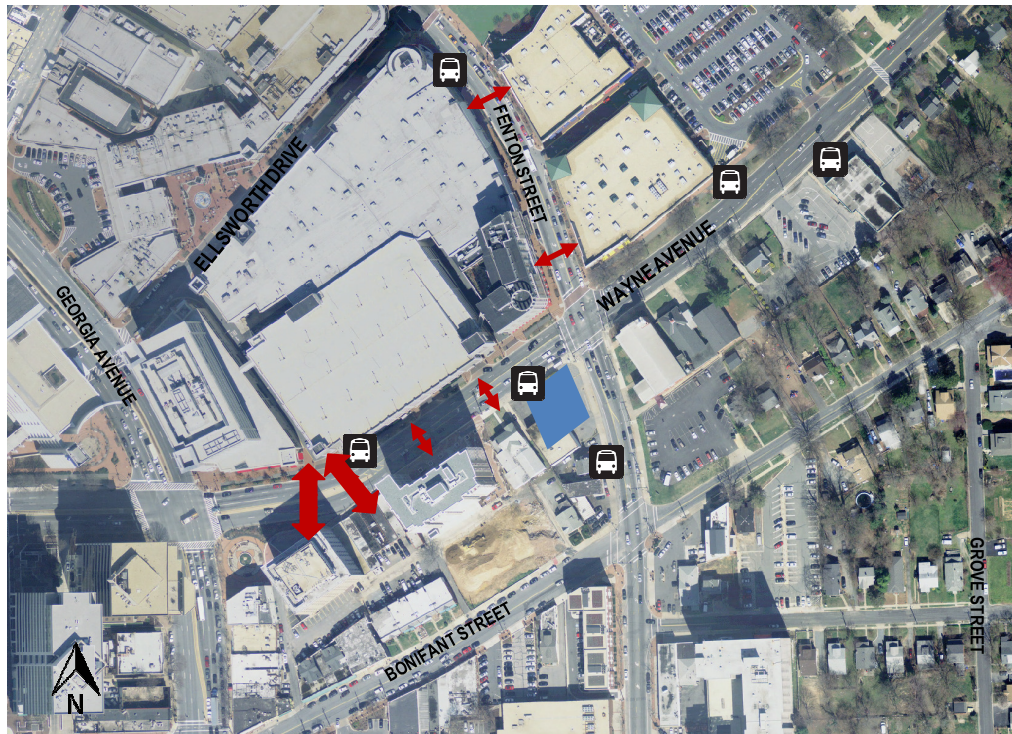


Figure 9: Observed Midblock Pedestrian Desire Lines

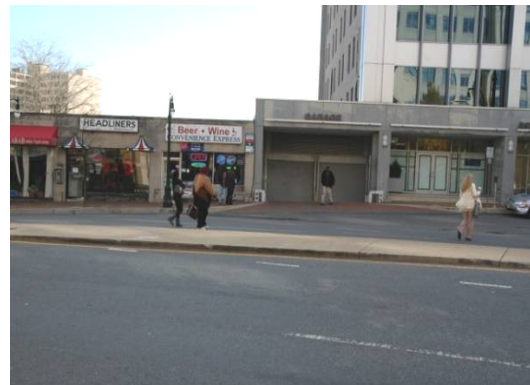


Figure 10: Pedestrians crossing Wayne Avenue between Georgia Avenue and Fenton Street.

### 3. Project Assessment

#### 3.1. Project Description

This section describes the safety and mobility impacts of the Silver Spring Library on pedestrians and bicyclists. Details of the proposed library project were described in the Silver Spring Regional Library Traffic Impact Analysis (July 2009) and the Silver Spring Regional Library Supplemental Pedestrian Analysis (January 2010). Though a pedestrian bridge linking the Library directly to the parking garage was proposed as part of the original library design, it was not approved and as such this report has been prepared with the assumption there is no bridge. The provision of the bridge would reduce pedestrian and vehicle interactions at the intersection, and as such would provide some incremental level of improved pedestrian safety and comfort.

**Figure 11** illustrates the proposed Silver Spring Library site plan and proposed Purple Line light rail track alignment. The proposed site is bordered by Wayne Avenue to the north, Bonifant Street to the south, Fenton Street to the east, and Georgia Avenue to the west. The proposed library contains seven floors plus one basement level. The proposed project will include a 65,000 square foot library, a 20,000 square foot arts center, and 15,000 square foot of office space. The current locally preferred Purple Line track alignment converts the existing westbound lanes of Bonifant Street from Georgia Avenue to 150 feet west of Fenton Street into a dedicated bi-directional light rail transitway. Near Fenton Street, the track alignment curves north into the proposed library site then proceeds east on Wayne Avenue, within the roadway.

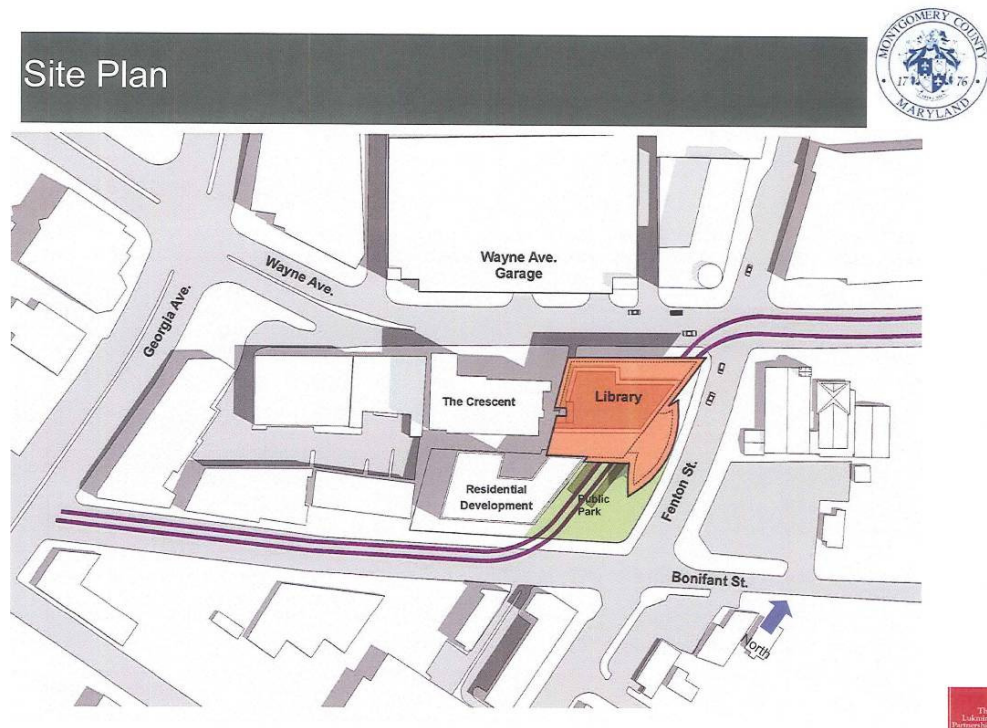


Figure 11: Proposed Silver Spring Library Site Plan

### **3.1.1. Site Access**

Site access for various modes of travel is provided at several locations. The primary public entrances to the proposed library building are at the north side of the building (Wayne Avenue) and at the east side of the building (Fenton Street). A rail station for the Purple Line is proposed within the library site with access to the ground floor of the proposed library project. Vehicular traffic can access the book drop-off location on the west side of the proposed library via a one-way service road from Bonifant Street. Vehicles can temporarily park in the proposed pull-off location on the service road and patrons access the drop-off through the entrance located on the west side of the building. This area will also provide ADA access to the proposed library. An egress stairwell to the service alley is also located on the west side of the proposed library. Vehicular parking for patrons is provided in the parking garage located on the north side of Wayne Avenue across from the proposed library. Figure 12 identifies the general locations of the proposed access points for pedestrians, transit, and vehicles.

**Figure 13** provides greater detail regarding the proposed library access points and provides a general indication of expected site circulation. Please note that the features shown in this figure were presented in an initial design meeting in May 2009. Several details may have been revised or relocated since that time. For example, there are two library access points shown on the north side of the building; however, only the access on the Wayne Avenue side is proposed at this time. Additionally, the figure shows a library access point on the south side of the building (facing toward Bonifant Street); however, this access point is now proposed on the east side of the building (Fenton Street).



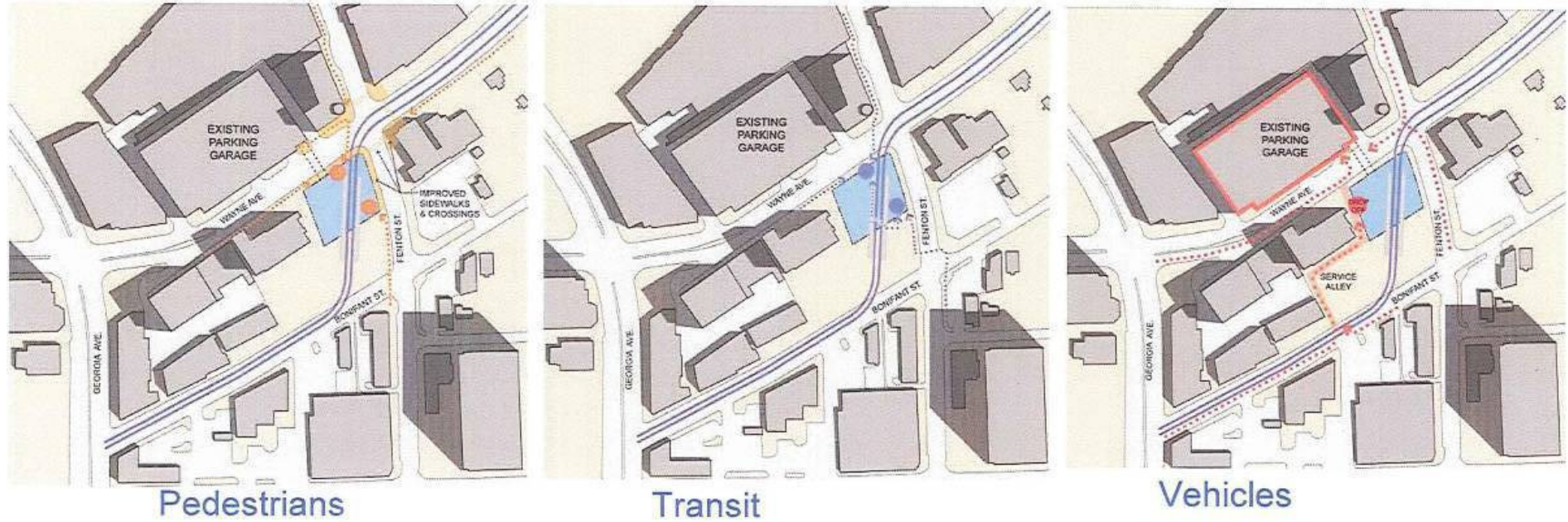


Figure 12: General Site Access Locations

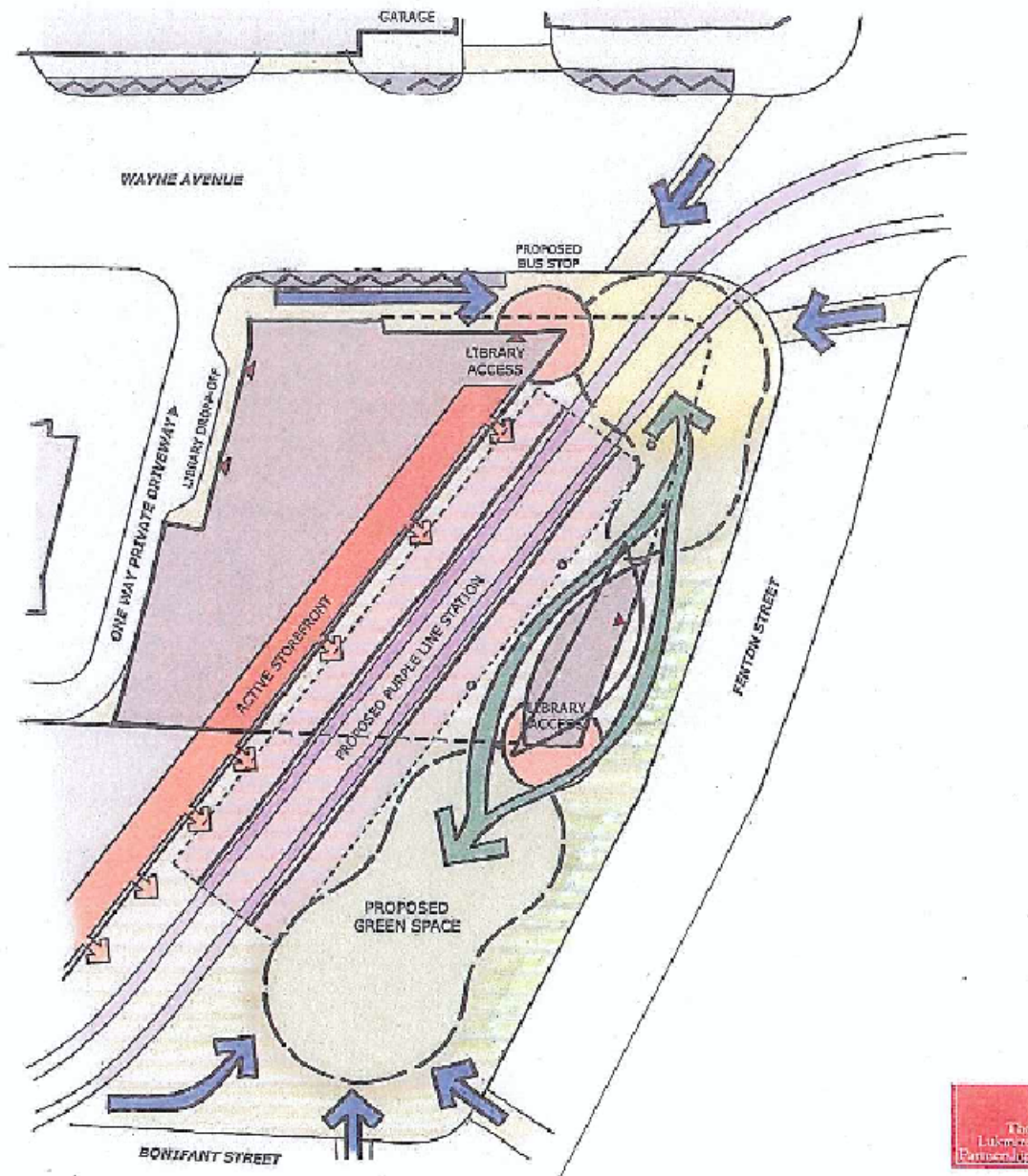


Figure 13: Detailed Site Access Locations & General Site Circulation

## 3.2. Project Impacts

### 3.2.1. Pedestrian and Bicycle Activity

#### Estimate of Future Pedestrian and Bicycle Volumes

The Wayne Avenue and Fenton Street intersection is likely to experience the greatest impact on pedestrian mobility and safety from the planned library project. Pedestrian volume data collection was conducted at this intersection in April 2009 as part of the

*Supplemental Pedestrian Analysis Silver Spring Regional Library.* The analysis reported 137 pedestrians used the west leg crosswalk at the intersection of Wayne Avenue and Fenton Street during the weekday evening peak hour. An estimated additional 108 pedestrian trips will be generated by the Silver Spring Library, resulting in 245 pedestrians per hour (pph) crossing at the west leg during the evening peak hour. The *Supplemental Pedestrian Analysis Silver Spring Regional Library* estimated 25 additional pedestrian trips at the intersection resulting from the proposed light rail station. The estimated pedestrian volume at the Wayne Avenue and Fenton Street intersection upon completion of the library and the Purple Line station is 270 pedestrians during the evening peak hour (Table 3).

Table 3: Weekday Evening Peak Hour Pedestrian Volumes  
West Leg of Wayne Avenue/Fenton Street Intersection.

Analysis Scenario	Pedestrian Volume (pph)
Existing	137
Existing + Silver Spring Library	245
Existing + Library + Purple Line station	270

*Source: Supplemental Pedestrian Analysis Silver Spring Regional Library*

Bicycle activity will also be impacted by the planned library and Purple Line projects. Quantitative projections for the increase in activity have not been developed; however, due to the library's proximity to the Silver Spring Green Trail, it is reasonable to conclude that the volume of cyclists will increase and, likewise, the demand for adequate bicycle parking facilities.

#### Probable Origins and Destinations

Future pedestrian and bicycle activity associated with the library is likely to originate from and depart to the major activity centers or services in the downtown Silver Spring area. The principal pedestrian generators in the study area include the following:

- Commercial properties and restaurants, primarily to the north and west of the library
- Parking garages on Wayne Avenue and Ellsworth Drive
- Residential areas to the east and north of the library
- Bus stop along Fenton Street and Wayne Avenue
- Silver Spring Metro Station/Silver Spring Transit Center (currently under construction)

**Figure 14** depicts the predominant anticipated pedestrian routes between the proposed library and nearby land uses generating pedestrian activity.



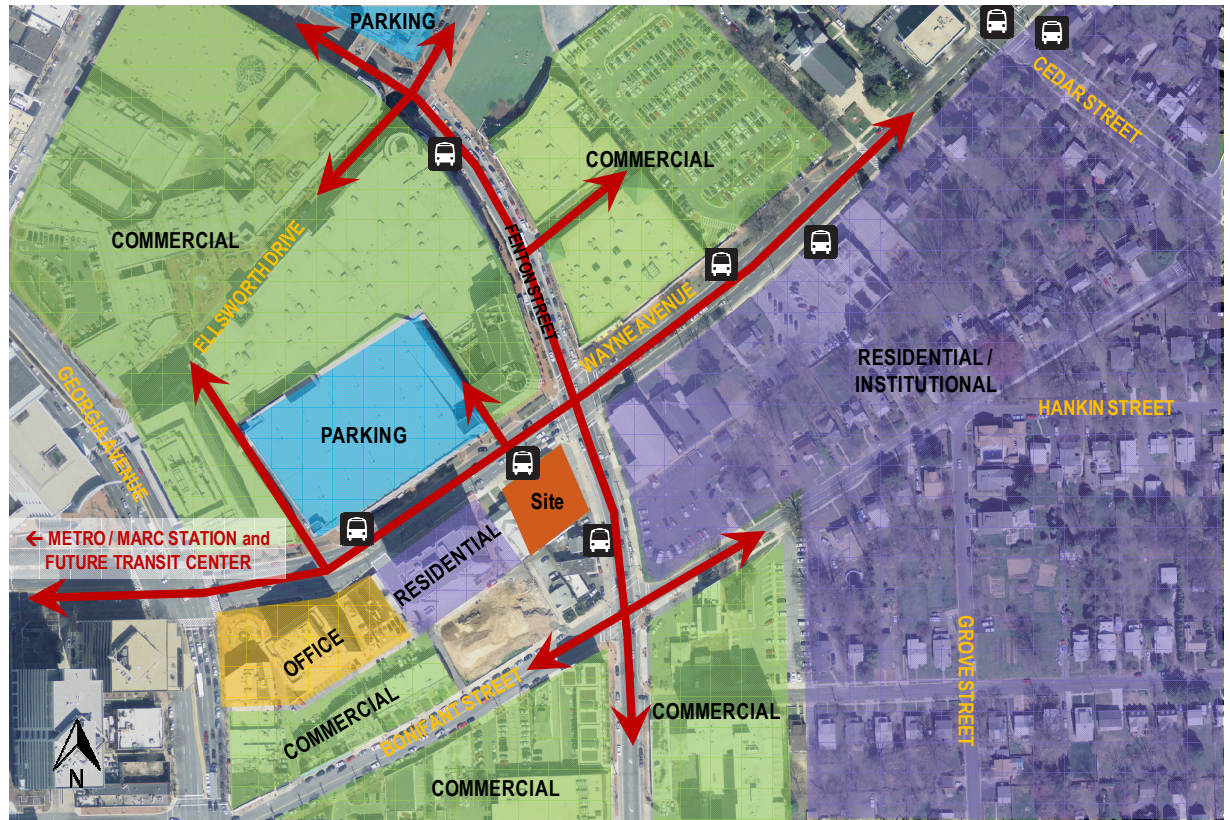


Figure 14: Pedestrian Generators and Routes near the Proposed Library

#### Summary of Pedestrian and Bicycle Activity Pedestrian Impacts

The following is a summary of the anticipated impacts associated with the library's projected pedestrian and bicycle activity:

- **The proposed development is anticipated to generate increased pedestrian and bicycle traffic at and between intersections (Wayne Avenue at Fenton Street, Wayne Avenue at Cedar Street, Fenton Street at Ellsworth Drive, and Fenton Avenue at Bonifant Street) within the study area.**
- **While traffic is anticipated to increase on all legs of the intersection, pedestrian traffic is anticipated to increase on the west leg of the intersection based on the location of the parking garage and specific trip generators west of the intersection, and the location of the proposed library entrance in the southwest quadrant of the intersection of Wayne Avenue & Fenton Street.**
- **Although bicycle traffic volume data is not available, trip generation and distribution assumptions would indicate that the proposed library is anticipated to result in increased volumes of cyclists using the Silver Spring Green Trail, which may result in more conflicts between cyclists and motorists exiting driveways.**

- **The assumption that there is anticipated to be an increase in the volume of cyclists using the Silver Spring Green Trail to access the proposed library correlates with an anticipated increased in demand for bicycle parking.**
- **Increased pedestrian demand may not be well-accommodated by narrow effective sidewalk widths along the south side of Wayne Avenue east of Fenton Street.**

### **3.2.2. Pedestrian/Bicycle Crossings**

#### **Pedestrian Desire Lines**

##### **Wayne Avenue West of Fenton Street**

The primary pedestrian access to the garage on Wayne Street is located on the opposite side of the street from the proposed library's Wayne Street entrance, potentially creating a new pedestrian desire line (note: due to differences in grade, plans call for stairs at the library entrance). A pedestrian desire line is generally perceived as "the path of least resistance" or the "shortest distance between two points." The closest designated crossing to these entrances is the crosswalk on the west leg of the Wayne Avenue/Fenton Street intersection, adjacent to the proposed library site. However, pedestrians crossing between the library and the parking garage may perceive an uncontrolled midblock crossing as advantageous for the following reasons:

- *Visibility of route* - A pedestrian at either the parking garage pedestrian access or the library entrance/exit will be able to see the pedestrian access to the other building across the street.
- *Distance of route* – Although presumably unsafe, crossing the street between the pedestrian access points (the garage and library) would be the shorter path. A pedestrian crossing Wayne Avenue midblock between the garage and library will walk approximately 90 feet; whereas using the crosswalk at the intersection will require walking approximately 270 feet. Being an uncontrolled crossing, the shorter travel distance would include conflicts with the traffic stream that is likely to be traveling at free-flow speeds and where pedestrians in the roadway are generally unexpected. In addition to walking the extra distance to the crosswalk at the intersection, pedestrians are required to adhere to traffic controls, which may often increase travel time.
- *Perceived conflicts* – There may be a perception that crossing at an uncontrolled midblock location between the library and garage minimizes conflict points between pedestrian and vehicular traffic. However, the nature of these conflicts, while fewer in number, are considerably different than those typically associated with an intersection. Midblock conflicts are typically unexpected and often involve vehicles moving at higher speeds. Pedestrians would cross to the



Two-Way Left-Turn Lane, which is an actual travel lane and not intended to provide a pedestrian refuge area. While presumably unsafe, this may be perceived as a “simpler” crossing than at the intersection where pedestrians contend with turning traffic.

The presence of the garage driveway in proximity to this potential uncontrolled midblock crossing location is likely to present additional vehicle-pedestrian conflicts that pedestrians may not consider. Discouraging pedestrian activity across Wayne Avenue between the garage and the library may be a significant challenge.

In addition to the potential for uncontrolled pedestrian midblock crossings between the Wayne Avenue garage and proposed library, pedestrian trips between the proposed library and the commercial district along Ellsworth Drive may increase. Pedestrians already use the alley connecting Ellsworth Drive to Wayne Avenue, adjacent to the Wayne Avenue garage, frequently resulting in pedestrians crossing Wayne Avenue at this location. The proposed library may result in a further increase of uncontrolled midblock crossings in proximity to the alley driveway.

The following is a summary of the anticipated impacts associated with the library’s affect on pedestrian desire lines on Wayne Avenue:

- **While traffic is anticipated to increase on all legs of the intersection, based on the location of the proposed library entrance in the southwest quadrant and the location of the Wayne Avenue Garage and specific trip generators west of the intersection, pedestrian traffic is anticipated to increase on the west leg of the intersection of Wayne Avenue & Fenton Street.**
- **The location of the library entrance on Wayne Avenue may contribute to increased pedestrian traffic on the west leg of the Wayne Avenue and Fenton Street intersection and creates a potential pedestrian desire line to and from the Wayne Avenue Garage.**
- **The proposed library may influence pedestrian trips to/from the Ellsworth Drive retail district using the alley connecting to Wayne Avenue. As a result, uncontrolled midblock crossings at the alley, approximately 200 feet east of Georgia Avenue, may increase.**

#### **Library Access from Fenton Street**

Although existing midblock crossing activity across Fenton Street adjacent to the proposed library site is minimal, the location of the eastern access to the completed library and café may generate additional midblock crossings at this location. The potential for mixed-use redevelopment on the east side of Fenton Street may contribute to a new midblock pedestrian desire line on Fenton Street. The following is the

anticipated impact associated with the library's affect on pedestrian desire lines on Fenton Street when the east side of Fenton Street is activated (or developed):

- **The midblock Fenton Street entrance to the library may encourage uncontrolled midblock pedestrian crossings.**

### **3.2.3. Curb and Sidewalk Design at Wayne Avenue/Fenton Street Intersection**

The curb between the sidewalk and street in the southwest quadrant of the intersection of Wayne Avenue and Fenton Street will be designed to maintain a consistent level (i.e. street level), due to the proposed Purple Line alignment, which passes through the corner of the intersection. The level curb design reduces the physical separation between the pedestrian space (i.e., the sidewalk) and vehicles traveling on the public street system. The proposed curb design may contribute to conflicts between pedestrians and vehicles in this area. Pedestrians walking along the sidewalk in the southwest quadrant of the intersection of Wayne Avenue and Fenton Street may encounter breaks in continuity in areas transitioning between the sidewalk, roadway, and Purple Line platform. As a result of the atypical curb and sidewalk design, pedestrian behaviors in this area are likely to be varied. Addressing potential conflicts in this area with clear, efficient, and logical direction is a significant challenge to providing safe and effective pedestrian accommodations.

The following is a summary the greatest impacts associated with the proposed curb and sidewalk design for the southwest corner of the Wayne Avenue/Fenton Street intersection:

- **The level curb section in the southwest corner of the intersection of Wayne Avenue & Fenton Street may increase the exposure of pedestrians at the corner to vehicles turning right (i.e., eastbound right-turn).**
- **The level curb section in the southwest corner of the intersection of Wayne Avenue and Fenton Street may result in conflicts between vehicles attempting to access the reserved Purple Line right of way and pedestrians waiting at the corner.**
- **Breaks in continuity are introduced in the sidewalk in the southwest quadrant of the intersection of Wayne Avenue and Fenton Street and along Bonifant Street at the future entrance of the proposed Purple Line.**

### **3.2.4. Location of Bus Stop East of Library Entrance on Wayne Avenue**

Current plans call for a bus shelter to be incorporated into the proposed library just east of the library pedestrian access on Wayne Avenue. It is intended that boarding and alighting passengers at the bus stop use the signalized marked crosswalk on the west leg of the Wayne Avenue/Fenton Street intersection. However, due to reasons stated

earlier in the report, the following is the anticipated impact associated with the proposed location of the bus stop on Wayne Avenue:

- **The proposed bus stop location at the Wayne Avenue library entrance may contribute to elevated uncontrolled midblock pedestrian crossing activity on Wayne Avenue, west of Fenton Street.**

### **3.3. Project Mitigation Measures/Recommendations**

This section describes the principal recommendations for pedestrian and bicyclist safety improvements and provides a table summarizing pedestrian impacts and corresponding recommendations.

#### **3.3.1. Pedestrian and Bicycle Activity**

The following pedestrian and bicycle facility enhancements are recommended to mitigate the impacts of projected increases in pedestrian and bicycle activity generated by the proposed library:

- **Install crosswalks with diagonal lines on all legs at the intersections of: Wayne Street & Fenton Street (except north leg where standard markings [i.e., transverse lines] should be applied in combination with the simulated brick crosswalk), Bonifant Street & Fenton Street, and Wayne Avenue & Cedar Street.** These crosswalks are currently marked without diagonal lines; which can help improve visibility of crosswalks to drivers. The north leg of the Wayne Street/Fenton Street intersection has a simulated brick pattern crosswalk with standard crosswalk pavement markings.
- **Evaluate the need to implement lead pedestrian intervals (LPI) for all pedestrian phases at the intersection of Wayne Avenue & Fenton Street.** Lead pedestrian intervals give pedestrians a 3-5 second head start on the parallel vehicle movement providing an opportunity for pedestrians to establish themselves in crosswalks before conflicting turning traffic receives a green signal indication. This intersection is expected to have the highest increase in pedestrian traffic due to its proximity to the proposed library and would likely have the greatest potential for pedestrian-vehicle conflicts.
- **Widen the crosswalk on the west leg of the intersection of Wayne Avenue & Fenton Street.** A wider crosswalk at this location can help capture a greater stream of pedestrians crossing to and from the proposed library entrance and indicate to drivers approaching the crossing that pedestrian activity is prevalent. The north end of the crosswalk would be approximately 20 to 30 feet wide, while the south end may be narrower. Modifications to the pedestrian signal array may also be required to provide adequate visual indications to pedestrians.

- **Evaluate the need for modifying or installing additional warning signage along the north side of Wayne Avenue between Cedar Street and Georgia Avenue.** The signs increase driver expectation of bicyclists on the Silver Spring Green Trail, particularly for drivers exiting the driveways from the parking garage.
- **Provide bicycle parking on the proposed site supplemented by bicycle parking in the Wayne Avenue garage as needed.** Additional bicycle parking will be needed on and in proximity to the proposed library to support the existing parking supply at the Wayne Avenue garage.
- **Consider sidewalk improvements along the south side of Wayne Avenue between Cedar Street and Fenton Street in conjunction with redevelopment of adjacent parcels.** Widening the sidewalk to a minimum of five feet would better accommodate the increased pedestrian demand, and installing header curb along the back of the sidewalk would help limit encroachment of grass and foliage to maintain adequate effective sidewalk widths.

### **3.3.2. Pedestrian/Bicycle Crossings**

The most significant impact on pedestrian and bicycle safety associated with the construction of the proposed Silver Spring Library will be crossing Wayne Avenue in the vicinity of the library. The following recommendations have been developed to accommodate increased pedestrian and cyclist demand across the west leg of the intersection of Wayne Avenue and Fenton Street and discourage midblock crossing activity:

- **Widen the crosswalk on the west leg of the intersection of Wayne Avenue & Fenton Street.** Modifications to the pedestrian signal array may also be required to provide adequate visual indications to pedestrians.
- **Evaluate the feasibility of installing a landscaped buffer along the south side of Wayne Avenue along the frontage of the site.** Installing a buffer would create a physical obstacle to discourage uncontrolled midblock crossings along the west leg of Wayne Avenue. This recommendation should be implemented in conjunction with relocating the bus stop on Wayne Avenue as described in Section 3.3.4.
- **Explore the potential to install a designated midblock crossing (including a pedestrian refuge, signage, and markings) approximately 250 feet east of Georgia Avenue, at the existing Ride-On bus stop, as shown in Figure 15.** A marked, midblock crossing at this location would serve the pedestrian trips that may be generated by the library from the retail area on Ellsworth Drive. The median at this location may be expanded to provide a pedestrian refuge. Pedestrians traveling between Ellsworth Drive and the library may use the alley

to the west of the Wayne Avenue garage, which would increase midblock crossing activity in proximity to the alley. At the request of the County Council, the Montgomery County Department of Transportation conducted a traffic study in January 2009 to evaluate marked midblock crossing treatment options on Wayne Avenue between Fenton Street and Georgia Avenue to improve pedestrian safety and access to the proposed library. This study did not recommend installing a midblock crossing at the east end of the parking garage due to safety and operational concerns. A crosswalk at the west end of the garage was found to be more suitable, although the study cited the limited appeal of this location for library patrons based on the inconvenient location relative to the library entrance. It should be noted that the study did not consider the potential trips generated by the library which may use the alley located to the west of the Wayne Avenue garage to access Ellsworth Drive and the commercial district of Downtown Silver Spring.

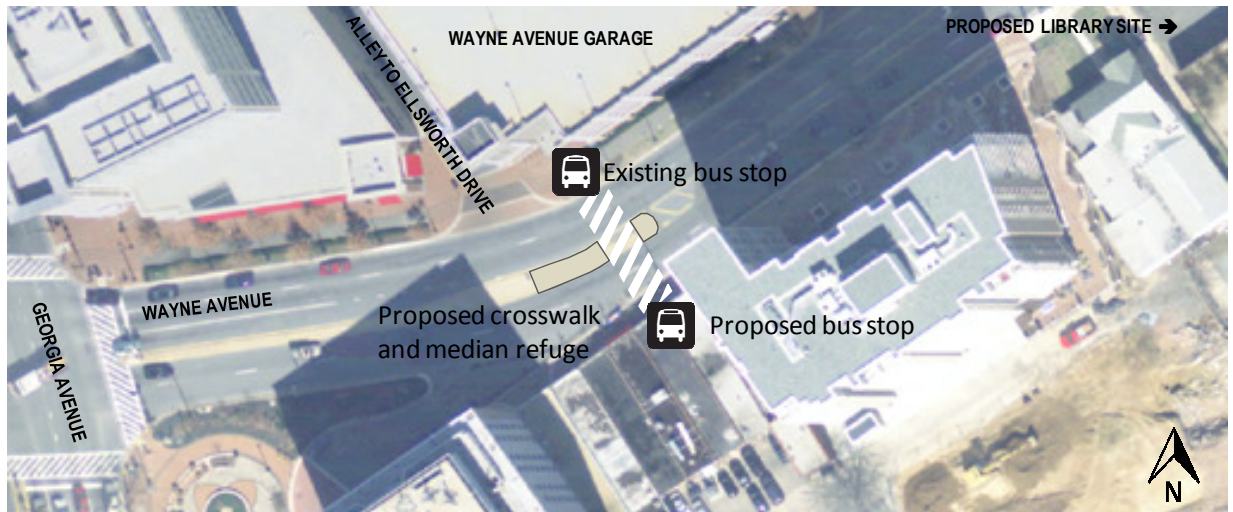


Figure 15: Proposed Midblock Crossing Location

The following recommendation has been developed to address the potential for midblock crossing activity on Fenton Street in proximity to the east library entrance:

- **At the appropriate time, review redevelopment plans for properties on the east side of Fenton Street to minimize pedestrian access design features that may encourage a midblock desire line.** This location currently experiences minimal midblock crossing activity, but future redevelopment plans should be reviewed to minimize site design features that may contribute to midblock crossings.

### **3.3.3. Curb and Sidewalk Design at Wayne Avenue/Fenton Street Intersection**

The curb and sidewalk design in the southwest quadrant of the Wayne Avenue/Fenton Street intersection are atypical and may contribute to vehicle-pedestrian conflicts. Plans



show that truncated domes will be installed on the sidewalk at the crossing of the Purple Line light rail alignment. These will help provide a tactile warning to pedestrians with sight limitations. However, other measures to alert pedestrians of this condition should be considered, including the following recommendation:

- **Install bollards on the southwest corner of the intersection of Wayne Avenue & Fenton Street to prevent vehicle encroachment/access, and to channel pedestrian traffic to the corner.** ADA compliance should be maintained for interim conditions across proposed Purple Line alignment on Wayne Avenue and Bonifant Street.

**3.3.4. Location of Bus Stop East of Library Entrance on Wayne Avenue**

The following recommendations are intended to reduce uncontrolled midblock crossings to and from the bus stop:

- **Evaluate the feasibility of installing a landscaped buffer along the south side of Wayne Avenue along the frontage of the site.** A buffer would create a physical barrier to discourage uncontrolled midblock crossing.
- **Explore the feasibility of relocating the existing bus stop approximately 350 feet to the west along Wayne Avenue, across from the westbound bus stop on the north side of the street.** Install a formal midblock crossing at this location as is described in Section 3.3.2.

## 4. Summary

Table 4 summarizes the impacts of the Silver Spring Library on surrounding pedestrian and bicycle crossings and routes. The table also summarizes the proposed recommendations to mitigate these impacts.

**Table 4: Pedestrian Impact Mitigation Measures**

<b>No.</b>	<b>Impact</b>	<b>No.</b>	<b>Recommendations</b>
<b>1</b>	The proposed development is anticipated to increase pedestrian and bicycle traffic at the intersections within the study area.	<b>1a</b>	Install crosswalks with diagonal lines on all legs at the intersections of: Wayne Street & Fenton Street (except north leg where standard pavement markings [i.e., transverse lines] should be applied in combination with the simulated brick crosswalk), Bonifant Street & Fenton Street, and Wayne Avenue & Cedar Street.
		<b>1b</b>	Evaluate the need to implement lead pedestrian intervals (LPI) for all pedestrian phases at the intersection of Wayne Avenue & Fenton Street to minimize conflicts between pedestrians and vehicles.
<b>2</b>	The location of the library entrance on Wayne Avenue may contribute to increased pedestrian traffic on the west leg of the Wayne Avenue and Fenton Street intersection and creates a potential pedestrian desire line to and from the Wayne Avenue Garage.	<b>2</b>	Widen the crosswalk on the west leg of the intersection of Wayne Avenue & Fenton Street to capture more pedestrians in the marked crossing. The north end of the crosswalk would be approximately 20-30 feet wide, while the south end may be narrower (NOTE: modifications to the pedestrian signal may be required).
<b>3</b>	The level curb section in the southwest corner of the intersection of Wayne Avenue & Fenton Street may increase the exposure of pedestrians at the corner to vehicles turning right (eastbound right turn).	<b>3 &amp; 4</b>	Install bollards on the southwest corner of the intersection of Wayne Avenue & Fenton Street to prevent vehicle encroachment/access, and to channel pedestrian traffic to the corner. Bollards must be installed in a manner that maintains ADA accessibility.
<b>4</b>	The level curb section in the southwest corner of the intersection of Wayne Avenue and Fenton Street may result in conflicts between vehicles attempting to access the reserved Purple Line right of way and pedestrians waiting at the corner.		

<b>No.</b>	<b>Impact</b>	<b>No.</b>	<b>Recommendations</b>
<b>5</b>	The location of the proposed library entrance on Wayne Avenue may contribute to elevated uncontrolled midblock pedestrian crossing activity on the west leg of Wayne Avenue.	<b>5 &amp; 6a</b>	Evaluate the feasibility of installing a landscape buffer along the south side of Wayne Avenue along the frontage of the site to create physical barrier to discourage uncontrolled midblock crossing along the west leg of Wayne Avenue (contingent upon implementation of Recommendation 6b).
<b>6</b>	The proposed bus stop location at the Wayne Avenue library entrance may contribute to elevated uncontrolled midblock pedestrian crossing activity on Wayne Avenue, west of Fenton Street.		Explore the feasibility of relocating the existing bus stop approximately 350 feet to the west along Wayne Avenue, across from the westbound bus stop on the north side of the street. Install a formal midblock crossing at this location (also see Recommendation 11).
<b>7</b>	Breaks in continuity are introduced in the sidewalk in the southwest quadrant of the intersection of Wayne Avenue & Fenton Street and along Bonifant Street at the future entrance of the proposed Purple Line.	<b>7</b>	Maintain ADA compliance for interim conditions across proposed Purple Line alignment on Wayne Avenue and Bonifant Street.
<b>8</b>	The proposed library is anticipated to result in increased volumes of cyclists using the Silver Spring Green Trail, which may result in more conflicts between cyclists and motorists exiting driveways.	<b>8</b>	Evaluate the need for modifying or installing additional warning signage along the north side of Wayne Avenue between Cedar Street and Georgia Avenue for motorists exiting driveways.
<b>9</b>	Increased cyclist activity using the Silver Spring Green Trail to access the proposed library is anticipated to result in increased demand for bicycle parking.	<b>9</b>	Provide bicycle parking on the proposed site supplemented by bicycle parking in the Wayne Avenue garage as needed.
<b>10</b>	The midblock Fenton Street entrance to the library may encourage uncontrolled midblock pedestrian crossings.	<b>10</b>	At the appropriate time, review redevelopment plans for properties on the east side of Fenton Street to minimize pedestrian access design features that may encourage a midblock desire line.
<b>11</b>	The proposed library may influence pedestrian trips from the commercial properties on Ellsworth Drive that may use the alley connecting to Wayne Avenue. As a result, uncontrolled midblock crossings at the alley, located approximately 200' east of Georgia Avenue, may increase.	<b>11</b>	Explore the potential to install a designated midblock crossing (including a pedestrian refuge, signage, and marking) approximately 250' east of Georgia Avenue at the existing Ride-On bus stop. This may require modifications to the existing median.
<b>12</b>	Increases in pedestrian demand may not be well-accommodated by narrow effective sidewalk widths along the south side of Wayne Avenue, east of Fenton Street.	<b>12</b>	Consider sidewalk improvements along the south side of Wayne Avenue between Cedar Street and Fenton Street in conjunction with redevelopment of adjacent parcels. This includes widening the sidewalk and installing header curb along the back of the sidewalk to limit the encroachment of grass and other vegetation.